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Multicultural education in the mental health professions: A meta-analytic review

Timothy B. Smith
Brigham Young University, tbs@byu.edu

Madonna G. Constantine
Teachers College at Columbia University

Todd W. Dunn
Brigham Young University

Jared M. Dinehart
Brigham Young University

Jared A. Montoya
Brigham Young University

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Running head: MULTICULTURAL EDUCATION

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Timothy B. Smith

Brigham Young University

Madonna G. Constantine

Teachers College, Columbia University

Todd W. Dunn, Jared M. Dinehart, and Jared A. Montoya

Brigham Young University

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Abstract

The American Psychological Association and many other professional mental health organizations require graduate programs to provide education in multicultural issues. However, the effectiveness of multicultural education has been debated in the literature over the past several years. The overall purpose of this study was to examine the effectiveness of multicultural education using meta-analytic methodologies. Findings revealed that multicultural education interventions were typically associated with positive outcomes across a wide variety of participant and study characteristics. Multicultural education interventions that were explicitly based on theory and research yielded outcomes nearly twice as beneficial as those that were not. Priorities for future inquiry are enumerated, and increased institutional support for multicultural education initiatives is solicited.

Multicultural Education in the Mental Health Professions:

A Meta-Analytic Review

As the North American population continues to diversify, counseling psychologists and other providers of mental health services have an obligation to examine cultural sensitivity issues in practice and to facilitate the multicultural counseling competence needed in a pluralistic society (Carlson, Brack, Laygo, Cohen, & Kirkscey, 1998; Smith, 2004). However, as the need for mental health services and research concerning populations of color increases, research indicates that the availability of trained professionals to fulfill those needs may be limited (Bernal & Castro, 1994). At least one survey of mental health professionals has found that a "troubling number of respondents reported seeing clients despite reporting low levels of competence with that client group" (Allison, Echemendia, Crawford, & Robinson, 1996, p. 386). Several authors have therefore emphasized the need for high quality professional training specific to working with multicultural populations (e.g., Constantine & Sue, 2005; Kiselica, Maben, & Locke, 1999; Ponterotto, 1998).

Over the past two decades, the importance of multicultural education has been recognized within mandates of the American Psychological Association (APA) and Council for Accreditation for Counseling and Related Educational Program (CACREP) (Speight, Thomas, Kennel, & Anderson, 1995; Sue, Arredondo, & McDavis, 1992). For APA accreditation, graduate programs must demonstrate a plan for providing trainees with knowledge about the influence of diversity on human experience (APA, 1994). APA has issued ethical guidelines for providing services to historically oppressed groups, including statements for obtaining training, experience, and supervision to ensure the appropriateness and effectiveness of services (see APA, 2002). Moreover, APA has endorsed guidelines concerning multicultural education and

training (APA, 2003). Multicultural education has increasingly become an integral part of professional training in psychology.

Despite the increased professional emphasis on multicultural education, outcomes associated with multicultural education have come under scrutiny only in the past several years (Kiselica et al., 1999). Although multicultural education is generally believed to be effective, there are questions about the extent of its efficacy (Vontress & Jackson, 2004), and there are reasons to suspect that multicultural education could better address issues of practitioner competence (Carter, 2001). Hence the general purpose of our study was to quantitatively summarize existing research literature regarding the effectiveness of multicultural education. Specifically, we conducted two meta-analyses, one with retrospective survey studies and one with prospective outcome studies, to estimate the typical extent of the effect of multicultural education and to identify characteristics of study samples and methods that might explain variation in outcomes.

Overview of Multicultural Education in Psychology

Over 30 years ago, researchers began examining therapeutic practices as potentially neglecting the needs of people of color, with the field of counseling psychology pioneering several relevant initiatives (Hills & Strozier, 1992). In particular, conferences that addressed training issues for counseling professionals (e.g., Chicago in 1965, Vail in 1973, Austin in 1975, and Dulles in 1978) recommended greater cultural awareness for counselors working with diverse populations (Hills & Strozier, 1992). Participants in these conferences expressed dissatisfaction about the preparation of counselors to work with culturally diverse populations and sought to standardize instructional goals for working with various racial and ethnic groups. This initiative encouraged the development of the tripartite model of multicultural counseling

competence (Sue et al., 1982), which has provided the blueprint for much of the contemporary literature on multicultural education and evaluation (Constantine, 2001a).

Early analyses of multicultural education reported that the inclusion of such issues in curricula was minimal (Wyatt & Parham, 1985). However, in the mid-1980s APA accreditation standards were changed to mandate multicultural education (APA, 1986). Subsequent studies among counseling, clinical, and community psychology graduate programs indicated rapidly increased inclusion of multicultural issues in the curricula. For example, Hills and Strozier's (1992) survey of 49 APA-accredited counseling psychology programs reported that nearly 90% offered at least one multicultural course, and the remaining programs offered culturally relevant instruction through different departments. A few years later, surveys indicated that faculty and students in counseling psychology programs generally believed that multicultural issues were sufficiently covered (Constantine, Ladany, Inman, & Ponterotto, 1996; Ponterotto, 1997). Similar trends were noted among clinical psychology programs (Bernal & Castro, 1994), although Quintana and Bernal (1995) reported that counseling psychology programs typically had more frequent multicultural coursework, formalized supervision, and ethnic minority representation among faculty. Studies describing multicultural education in community psychology programs were slightly less promising (Sandler, 1994), reporting some noteworthy efforts to address multicultural content but with relatively low numbers of students and faculty of color (Suarez-Balcazar, Durlak, & Smith, 1994).

Multicultural Education Interventions: Divergent Paths to the Same Intended Destination?

Notwithstanding the gains made since the mid 1980s, there are many reasons to question the effectiveness of multicultural education. A consistent criticism of multicultural education in the mental health service professions is that the field developed without sufficient empirical,

theoretical, and institutional support (e.g., Atkinson & Lowe, 1995; Ponterotto & Casas, 1991).

The rapid proliferation of multicultural education courses that characterized the late 1980s

resulted in immediate compliance to long overdue professional guidelines, but carefully planned

implementation may not have kept pace. Dissatisfaction with the content and quality of

multicultural education has recently been voiced in the literature, with scholars requesting an

accounting (e.g., Vontress & Jackson, 2004) and challenging the field to make needed

improvements (e.g., Carter, 2001, 2003).

Largely in response to the lack of theoretical grounding characteristic of many

multicultural education interventions, Charles Ridley and colleagues published papers (e.g.,

Ridley, Espelage, & Rubinstein, 1997; Ridley, Mendoza, & Kanitz, 1994) calling for the

development of learning objectives, instructional strategies, and ultimately program designs

based on a clearly articulated training philosophy. Similarly, Ponterotto (1998) specified

characteristics of effective multicultural trainers and mentors, trainees, and training

environments. Although a few doctoral programs in counseling psychology exemplify the kind

of comprehensive, theoretically-based training environments advocated by Ridley and Ponterotto

(e.g., Teachers College, Columbia University and The University of California at Santa Barbara,

see Ponterotto, 1997), many other applied psychology training programs have yet to follow their

lead. A recent national survey indicates that the type and quality of multicultural education

provided varies considerably across programs (Priester, Jackson-Bailey, Jones, Jordan, & Metz,

under review), with many instructors basing interventions, assignments, etc. around the content

of a textbook, rather than on existing theory and research. In practice, multicultural education

currently consists of a multiplicity of paths with signposts indicating a supposedly similar

intended destination—multicultural counseling competence—but many instructors do not avail themselves of guidelines provided by extant theoretical models (i.e., Arredondo et al., 1996).

A related concern about multicultural education is that sometimes it has focused more on knowledge acquisition than on skill development (Carter, 2001). Optimally, multicultural education includes direct supervision of experiential learning activities and guided practice. It is not surprising that students have rated experiential activities as being the most helpful component in their acquisition of multicultural competence (Heppner & O'Brien, 1994) or that experience working with diverse clients is a strong predictor of multicultural skills (Allison et al., 1996; Arthur & Januszkowski, 2001). However, authors of a content analysis of syllabi from 55 APA-accredited programs concluded that multicultural education courses "almost completely ignore the development of related skills" (Priester et al., under review, p. 2). Thus another critical flaw in the field is the disquieting lack of evidence that the many paths taken by instructors lead directly to skillful multicultural practice in clinical settings.

Multicultural Education Outcome Research

Many researchers (e.g., Constantine, 2000, 2001a; Pope-Davis, Reynolds, Dings, & Nielson, 1995; Sodowsky, Kuo-Jackson, Richardson, & Corey, 1998) have reported positive relationships between the receipt of multicultural education and self-perceived multicultural counseling competence. Although much of this research literature consists of retrospective surveys, many outcome studies have been conducted. In one of the first outcome studies examining the effectiveness of multicultural education, D'Andrea, Daniels, and Heck (1991) reported that students' completion of a multicultural training course was associated with greater self-reported multicultural counseling competence. Neville and her colleagues (1996) found that White trainees' completion of a multicultural counseling course resulted in increased self-

reported multicultural competence and in more mature racial identity attitudes and that those changes remained stable at one-year follow up. Outcome studies exploring the relationship between multicultural counseling training and external or third-party ratings of multicultural competence also have reported typically positive effects (e.g., Constantine, 2001a; Constantine & Gushue, 2003), although it is presently unclear if studies using observers' ratings have outcomes of equivalent magnitude to those from studies using self-report methodologies. Overall, existing outcome research generally suggests that multicultural education can facilitate the development of attitudes, knowledge, and skills associated with multicultural counseling competence.

However, it is important to note that the generally positive effects of multicultural education have sometimes differed across participant and study characteristics. Some scholars have reasoned that people of color and women may be more likely to embrace principles of multiculturalism than Whites and men, in part due to existing power dynamics in North American society (e.g., Smith, 2004). In some studies, people of color have been found to report greater levels of multicultural counseling competence than their White counterparts (e.g., Pope-Davis et al., 1995; Sodowsky et al., 1998), whereas other studies have not reported significant differences by race/ethnicity (e.g., Constantine, 2001a; Manese, Wu, & Nepomuceno, 2001; Pope-Davis, Reynolds, Dings, & Ottavi, 1994). Similarly, significant gender differences in self-reported multicultural competence have been found in some investigations (e.g., Constantine, 2000; Constantine & Yeh, 2001) but not in others (e.g., Constantine, 2001a; Pope-Davis et al., 1994, 1995). The inconsistent findings with regard to participant race/ethnicity and gender may indicate possible moderator effects that should be further explored in the context of evaluating the effectiveness of multicultural education.

Researchers examining multicultural education have also explored a variety of conceptually related dependent variables, most frequently self-reported multicultural counseling competence, but also race-related attitudes and client-counselor interpersonal relationship variables (e.g., Ladany, Inman, Constantine, & Hofheinz, 1997; Neville et al., 1996; Ottavi, Pope-Davis, & Dings, 1994; Parker, Moore, & Neimeyer, 1998). Investigators using combinations of these variables have found that (a) more mature racial identity statuses are positively associated with self-perceived multicultural counseling competence (e.g., Constantine, Juby, & Liang, 2001; Ottavi et al., 1994); (b) higher levels of racism are negatively associated with self-perceived multicultural competence (e.g., Constantine, 2002b); and (c) greater levels of emotional empathy are positively associated with self-reported multicultural competence (Constantine, 2000). Although these interrelated outcome variables may all be associated with ways that counselors work with clients from historically disadvantaged backgrounds, they may be differentially affected by multicultural education (Kiselica et al., 1999). For example, multicultural education may have a greater influence upon self-reported multicultural competence than on the quality of client-counselor interactions, which ostensibly is the more consequential outcome. Such issues of measurement need to be considered in determining the overall effectiveness of multicultural education.

Overall, existing research seems to indicate that multicultural education facilitates the development of multicultural competence. Indeed, the APA Guidelines (2003) strongly promote multicultural education based on a narrative review of existing research. Nevertheless, the studies cited in the APA Guidelines (2003) represent only a portion of the available literature on the topic, which has dramatically increased in size and scope since the time of the last systematic

review of all studies available (Kiselica et al., 1999). Therefore, a systematic, quantitative review of the multicultural education literature appears warranted at this time.

Purpose of the Present Study

To date, only narrative reviews of the multicultural education literature have been conducted. Because narrative reviews are susceptible to subjective biases of the reviewer(s) and because narrative reviews do not typically account for the magnitude of the effects observed, quantitative methods are preferable (Bushman & Wells, 2001). Thus to synthesize the rapidly expanding body of research on multicultural education, we embarked on a series of meta-analyses to estimate the typical magnitude of the effects of multicultural education interventions.

Because of differences noted in the literature regarding the format and content of multicultural education interventions, we considered it important to investigate differences across intervention format (e.g., university-based class vs. workshop), inclusion of skill-building experiential activities, and use of theoretically-based pedagogy. Similarly, because of possible differences across the type of dependent measure (i.e., client-counselor interpersonal relationships vs. self-perceived multicultural competence) and data collection format (self-report vs. client/observer ratings), we evaluated outcomes across different types of measures. Furthermore, because some existing research has indicated that people of color and women may view themselves or be viewed as having higher levels of multicultural competence than Whites and men it was necessary to examine differences in study outcome across participant race/ethnicity and gender. We believed that findings from this study might have implications for multicultural education in applied psychology graduate programs that could extend to service delivery issues related to working with diverse cultural populations.

Because retrospective surveys of participants' multicultural education are conceptually distinct from and should carry less weight than outcome research examining changes associated with a particular multicultural education intervention (Ponterotto, 1998), we conducted separate analyses for these two bodies of literature. In the first meta-analysis, we evaluated studies that surveyed individuals regarding their levels of education in multicultural issues (e.g., number of multicultural courses completed). In the second meta-analysis, we evaluated studies reporting outcomes following an intervention (i.e., a university class or a workshop on multicultural counseling). The two meta-analyses represent findings from two sets of studies using different research methods to attempt to answer the same question: How effective is multicultural education? Admittedly, results from survey studies (Meta-analysis 1) have greater limitations and fewer implications than outcome studies (Meta-analysis 2), but as there have been no previous attempts to quantitatively synthesize the multicultural education literature, we believed it important to summarize both types of studies in this report. The methodological and statistical procedures were identical for the two meta-analyses, so we report the procedures in the same section, as follows.

Method

Literature Search

To identify published and unpublished studies that examined the effectiveness of multicultural education in the mental health professions across a thirty-year period (January 1, 1973 through December 31, 2002), we used three techniques. First, in March, 2002 we conducted searches with several electronic databases: Dissertation Abstracts, Education Resources Information Center (ERIC) database, HealthSTAR, Medline, Mental Health Abstracts, Programme Appliqué a la Selection et a la Compilation Automatiques se la Literature

(PASCAL), PsycINFO, Social Sciences Abstracts, Social SciSearch, Sociological Abstracts via SocioFile, and Social Work Abstracts. To capture the broadest possible sample of relevant articles, we used multiple search terms, including all words beginning with the roots *cultur, multicultur, transcultur, cross-cultur, race, racial, or ethnic.* These terms were crossed with a series of search words related to counseling and psychology (all words beginning with the roots *counsel, treatment, guidance, therapy, psychotherapy, provid, service, or practic*) and with search words related to training (all words beginning with the roots *train, supervis, education, course, workshop, instruct, teach, experience, competen, or proficien*). To reduce inadvertent omissions, databases yielding the most citations (Dissertation Abstracts, ERIC, PsycINFO, and Social Science Abstracts) from 1973 to 2002 were searched two to four additional times from September 2002 until July 2003 by different members of the research team. Second, we manually examined the reference sections of past reviews and of studies meeting the inclusion criteria to find articles not identified in the database searches. Finally, we sent solicitation letters to authors who had published three or more articles on the topic to obtain several additional unpublished studies. Unpublished studies and dissertations obtained by contacting the authors or university libraries eventually accounted for 35% of included reports.

The two inclusion criteria were that studies (1) be written in English and (2) provide quantitative data on a dependent variable as a function of multicultural education. The extensive literature search procedures yielded over 2,000 potentially relevant citations. However, over 95% of retrieved citations were excluded because they were not directly relevant (i.e., studies that evaluated multicultural counseling but not multicultural education), were not written in English, or did not contain quantitative data (i.e., opinion papers, qualitative research reports).

Data Coding

Research studies that met the inclusion criteria were coded by two different coding teams, with two raters on each team to decrease the likelihood of human error in data coding and data entry. Coders received extensive training to increase the reliability of their efforts.

Coders extracted several objectively verifiable characteristics of the studies: (a) the publication status and outlet (journal article, dissertation, etc.), (b) the number of participants and their composition by race/ethnicity and gender, (c) the research design used, (d) the educational intervention provided (e.g., course vs. workshop), and (e) the type of dependent measure(s) used. Inter-rater agreement was acceptably high for categorical variables (Cohen's *kappa* ranging from .65 to .99 across variables, with an average value of .79) and for continuous variables (intraclass correlations ranging from .71 to .99, with a mean of .86). Discrepancies were resolved by discussion and consensus after computation of inter-rater reliability coefficients.

Computation of Effect Size Estimates

To enable meta-analytic analyses, effect sizes extracted from the studies were all transformed to the metric of the standardized mean difference (*d*) (Cohen, 1988). Data reported in other formats (e.g., Chi-square, correlation, etc.) were transformed to *d* coefficients using Meta-analysis Calculator software (Lyons, 1996). In three cases no statistic was provided but an analysis was reported as statistically significant, so we determined the standardized mean difference corresponding to the reported *alpha* level. Effect size direction was coded uniformly, such that positive values indicated improved outcomes as a function of training and negative values indicated that outcomes were worse as a function of training.

Several studies reported data on multiple outcome measures. For example, some studies assessed outcomes in terms of both self-reported multicultural competence and racial identity

development statuses. Because the use of multiple effect sizes in the omnibus analysis would have violated the assumption of independent samples, we followed procedures described by Gleser and Olkin (1994) in generating an aggregate effect size, using a modified version of macros developed by Hoyt (see Rosenthal, Hoyt, Ferrin, Miller, & Cohen, under review). Thus each study contributed only one data point to the final analyses.

Analyses

To aggregate effect sizes across studies and to estimate the reliability of those aggregates, we calculated random effects models using SPSS macros developed by Lipsey and Wilson (2001). Following the computation of the overall magnitude of effectiveness of multicultural education, we conducted random effects weighted regression models were conducted to examine the influence of potential moderating variables. Such analyses are useful in determining circumstances under which intervention outcomes vary in strength, such that a more accurate depiction of the association is provided.

As indicated previously, the conceptual differences between retrospective surveys of participants' multicultural education and prospective studies examining outcomes associated with a particular multicultural education intervention necessitated that we conduct analyses separately for those two segments of the literature. The first meta-analysis included survey studies, and the second meta-analysis included outcome studies.

Results of Meta-Analysis 1: Retrospective Survey Studies

Descriptive Information

We extracted statistically non-redundant effect sizes from 45 survey studies of multicultural education. Across these studies, data were reported from a total of 5,991 participants, with an average of 133 participants per study (median = 122, range = 25 to 344).

Participants were on average 37 years old ($SD = 9$), with additional demographic characteristics

presented in Table 1.

The 45 studies included in this meta-analysis typically accessed an existing group of

individuals (e.g., mailing lists from professional associations, students in graduate programs, or

registrants at professional conferences), delivered a survey to them, and then analyzed the data

returned. Individuals who reported completing multicultural education were compared with

participants who had not completed multicultural education (typically analyzed via *t*- or *F*-tests),

or the number of courses or workshops completed was used as the comparison variable (typically

analyzed via zero-order correlations). Dependent measures varied from study to study, but

measures of multicultural counseling competence were the most frequently administered (Table

1). Only one investigation (Vinson, 2000) involved a follow-up survey to a group previously

assessed.

Omnibus Analysis

Across the 45 survey studies that retrospectively evaluated participant levels of

multicultural education, the random effects weighted average effect size was $d = .49$ ($SE = .04$, p

$< .000001$, 95% Confidence interval $= .41$ to $.56$). When the results were adjusted for attenuation

due to measurement error (estimated from the reliability coefficients of the dependent variables;

see Hunter & Schmidt, 1990), the random effects weighted average effect size was $d = .53$ ($SE =$

$.04$, $p < .000001$, 95% Confidence interval $= .45$ to $.62$), $Q_{(44)} = 195.3$, $p < .001$. Effect sizes

ranged from .00 to 1.46, with the index of heterogeneity across studies being statistically

significant, $Q_{(44)} = 170.7$, $p < .001$, suggesting that systematic effect size variability was

unaccounted for. To determine if the variance in effect sizes was greater than that attributable to

sampling error, we subtracted the variance due to sampling error (.01) from the variance of the

effect sizes (.027), as recommended by Hunter and Schmidt (1990). Because the remaining variance was greater than zero, we conducted additional analyses to determine the extent to which the variability of the effect sizes was moderated by other variables.

Publication Bias

As a first step, we evaluated the possibility that the results presented above were moderated by the publication status of the research manuscript. This analysis was essential because of possible *publication bias*, which is related to (1) the likelihood for meta-analyses to include larger numbers of published than unpublished studies and (2) the likelihood for published studies to have larger effect sizes than unpublished studies. The combination of these two trends may result in a meta-analysis reporting inflated effect size values unless publication bias is explicitly evaluated. In the present study, the average random effects weighted effect size across 29 published manuscripts was $d = .52$, whereas the average effect size for 16 unpublished manuscripts was $d = .41$, which difference did not reach statistical significance ($Q = 1.9$, $p = .16$).

As an additional step to rule out the possibility of publication bias, we calculated a fail-safe N (Begg, 1994), or the theoretical number of unpublished/missing studies with effect sizes averaging zero (no effect) that would reduce the overall magnitude of the results obtained to a trivial number, here set at $d = .10$, using Cohen's (1988) guidelines for interpreting effect sizes. Based on this calculation, at least 153 additional studies averaging $d = 0$ would need to be found to render negligible the results of the 45 studies that were obtained. It seems improbable that at least 153 studies with null findings were unaccounted for in the literature; thus we reasoned that publication bias did not adversely impact the results reported above.

Moderation by Sociodemographic Variables

As described in the Method section, we coded for the sociodemographic variables of participant race/ethnicity and gender, which may have moderated the overall results. To determine the degree of association of these two variables with the effect sizes in the studies, we performed a random effects weighted multiple regression model. Specifically, effect sizes were regressed on the percentages of people of color and women in the research sample. These values were treated as independent predictors (main effects), even though participants' gender and race/ethnicity do interact (i.e., women participants were either persons of color or Whites). This type of analysis was necessary because of the aggregate format of the data reported within studies, so we were unable to determine interaction effects (e.g., women of color possibly reporting different benefits from multicultural education than White women). Values for the predictor variables were centered on the between-study means. Thus a value of zero, for example, for percentage of women, actually represented the average number of women participants across all 45 studies included in the meta-analysis.

The two sociodemographic moderator variables accounted for 7.2% of the variance in effect sizes, which was not statistically significant ($Q_2 = 4.0$, $p = .14$). The first model in Table 2 shows the regression coefficients and associated levels of statistical significance. The parameter labeled "Constant" is the equivalent of the effect size ($d = .48$) that would be expected in a study in which race/ethnicity and gender took average values (set at zero as mentioned previously). Although there was a trend for surveys with greater proportions of people of color to have effect sizes of higher magnitude, statistical significance was not achieved. Thus participant race/ethnicity and gender did not clearly moderate the results of retrospective survey studies of multicultural education.

Moderation by Type of Measure

As displayed in Table 1, a variety of self-report measures were administered across the 45 survey studies of multicultural education. The majority involved assessments of multicultural counseling competence, such as the Multicultural Awareness/Knowledge/Skills Survey (MAKSS; D'Andrea et al., 1991). We found infrequent use of measures of racial identity (White Racial Identity Attitude Scale; Helms & Carter, 1990), racial prejudice (e.g., Social Distance Scale; Bogardus, 1925), or client-counselor interpersonal relationships (e.g., Working Alliance Inventory; Horvath & Greenberg, 1989), with only a few studies using multidimensional measurement by assessing more than one of these constructs (e.g., the study used both a measure of multicultural counseling competence and a measure of racial prejudice). All of these kinds of measures could be affected by multicultural education, but it was possible that multicultural education might be more strongly associated with one type of measurement content than with the others. To rule out this possibility we conducted a random effects weighted regression model to predict effect size magnitude using measurement type, dummy coded in contrast with studies that used multidimensional measurement.

The regression model accounted for 7.3% of the variance in effect sizes and did not reach statistical significance ($Q_4 = 3.9$, $p = .41$). The second model depicted in Table 2 shows the regression coefficients and associated levels of statistical significance for each type of measure. The differences in the ability of measures of self-reported multicultural competence, relationships with clients, racial identity, and racial prejudice to predict effect size magnitude did not reach statistical significance. Thus in retrospective survey designs, individuals who had received multicultural education appeared to have equivalently higher scores on all of these measures than individuals who had not received multicultural education.

Results of Meta-Analysis 2: Outcome Studies

Descriptive Information

We extracted non-redundant effect sizes from 37 studies that evaluated participant outcomes following a multicultural educational intervention. Across these studies, data were reported from a total of 2,132 participants, with an average of 58 participants per study (median = 48, range = 14 to 208). On average participants were 30 years old ($SD = 7$), with additional demographic characteristics presented in the second column of Table 1.

Studies included in this second meta-analysis conducted a pre-test evaluation, followed by a multicultural education intervention, and then a post-test evaluation at the conclusion of the intervention. In half ($k = 19$; 51%) of the studies, a single group of participants were evaluated from pre- to post-test. The remaining studies were experimental (randomly assigned; $k = 6$) or quasi-experimental (pre-existing groups of students; $k = 12$), with data from a group receiving multicultural education being compared with data from another group receiving general coursework of equivalent duration. Only one study involved a non-equivalent (i.e., no intervention) control group.

As seen in Table 1, different kinds of dependent measures were used to evaluate outcomes, although the majority used measures of multicultural counseling competence. Notably, the 37 outcome studies also differed in how the data were collected, with 27 (73%) obtaining data through participant self-report and 10 (27%) obtaining data through observer ratings or a combination of self-report and observer ratings.

As would be expected, the multicultural educational interventions also varied across studies. The majority of interventions were extensive training programs or semester-long university courses, but 15 (40%) were workshops of less than two weeks duration. Nine studies

reported developing the educational intervention based on the multicultural competency literature (e.g., Arredondo et al., 1996); eight were based on Pedersen's (1978) triad training model; three were based on mainstream psychological theories (e.g., learning theory); two were based on Helms' (1990) racial identity development models; one was based on Ivey's microskills training (Nwachuku & Ivey, 1991); and 14 (38%) provided no information about the theoretical basis for the multicultural education provided in the study. Skill-building experiential activities (e.g., counseling role plays, cultural immersion experiences, or supervision of counseling) were included in 15 studies, with the remainder providing traditional didactic instruction (e.g., readings/films, lectures/discussions, written reports/journaling).

Omnibus Analysis

Across the 37 studies that evaluated an actual educational intervention, the random effects weighted average effect size was $d = .92$ ($SE = .1$, $p < .000001$, 95% confidence interval $= .72$ to 1.12). When the effect sizes were adjusted for attenuation due to measurement reliability coefficients (Hunter & Schmidt, 1990), the random effects weighted average effect size was $d = .98$ ($SE = .10$, $p < .000001$, 95% Confidence interval $= .77$ to 1.19), $Q_{(36)} = 453.6$, $p < .001$. Effect sizes ranged from .17 to 2.32, with the index of heterogeneity across studies being statistically significant, $Q_{(36)} = 412.8$, $p < .001$, suggesting that systematic effect size variability was unaccounted for. Furthermore, following procedures outlined by Hunter and Schmidt (1990), when we subtracted the variance due to sampling error (.014) from the variance of the effect sizes (.047), the remaining variance was greater than zero. We therefore conducted additional analyses to evaluate the degree to which the remaining variance could be accounted for by other variables.

Publication Bias

We first evaluated the possibility that the results from the 37 outcome studies were moderated by the publication status of the research manuscript. The difference between published vs. unpublished investigations of an actual educational intervention did reach statistical significance ($Q = 5.9$, $p = .015$), with 24 published studies having an average effect size of $d = 1.1$, and 13 unpublished studies having an average effect size of $d = .62$. The size of this difference suggested a high likelihood of publication bias affecting the results, particularly if there were reasons to believe that large numbers of unpublished studies remained unconsidered. We therefore conducted additional analyses to attempt to address that concern.

A method for determining the extent to which data may have been "missing" from a meta-analysis is to plot the effect sizes against the sample size of the study, sometimes referred to as a "funnel graph" (Begg, 1994). Because studies with small sample sizes tend to be more plentiful than studies with large sample sizes and because studies with smaller samples typically show greater variability in effect size magnitude than studies with larger samples, the resulting graph tends to have the shape of an inverse funnel. However, among the 37 investigations included in the second meta-analysis, the average sample consisted of 58 participants, with only 4 studies having more than 100 participants. With such small numbers of participants, a wide variability in effect sizes would be expected, and the resulting "funnel graph" did indeed demonstrate that variability: Data points were consistently distributed all across the bottom of the graph (the normal "base" of the funnel). However, the graph lacked a "peak" representing the top half of the expected funnel shape, indicating the absence of large N studies. Therefore, the funnel graph method was not useful in determining whether potentially "missing" studies would have changed the results reported if they had been included.

As a third step, we calculated a fail-safe N (Begg, 1994), which indicated that at least 238 additional studies averaging $d = 0$ would need to be found to render negligible ($d < .10$) the results of the 37 intervention studies that were obtained. It seemed unlikely that 238 surveys with null results had evaded our extensive literature search.

As a final step, we conducted a "trim and fill" analysis (Duval & Tweedie, 2000a, 2000b) to estimate the number of missing studies due to publication bias. This method involves removing ("trimming") outlying studies that have no corresponding values on the opposite side of the distribution and then re-calculating the mean effect size. This process is repeated until the distribution is symmetrical with respect to the mean. In our analyses, we followed the recommendations of Duval and Tweedie (2000b) in using L_0^+ to estimate the number of "missing" studies, using formulae provided by Jennions and Moller (2002). The final step in the procedure is to replace the "trimmed" studies along with "filled" estimated values of the "missing" studies on the other side of the distribution. The "filled" studies correspond with the opposite values of those "trimmed." The resulting data set inclusive of "filled" missing studies is then used to calculate a new omnibus effect size, with statistically non-significant values indicating potential publication bias. In the current study, the recalculated random effects weighted mean effect size was $d = .89$ ($p < .00001$). Thus publication bias does not appear likely to be a threat to the results obtained in this meta-analysis.

Moderation By Sociodemographic Variables

As described in the literature review, we considered it possible that the magnitude of study outcomes was associated with demographic characteristics of participant race/ethnicity or gender. We therefore regressed the percentage of participants who were people of color and percentage who were women onto the effect sizes derived from each study after centering values

on the between-study means. As in the first meta-analysis, these values were treated as independent predictors (main effects) because the data reported within studies were not disaggregated by interactions of race/ethnicity and gender.

The two sociodemographic variables accounted for 11.3% of the variance in effect sizes, which did not reach statistical significance ($Q_2 = 4.6$, $p = .10$). The first model in Table 3 shows the regression coefficients and associated levels of statistical significance. Although there was a trend for studies with greater proportions of female participants to have larger effect sizes, statistical significance was not shown. The results of the regression model indicate that neither race/ethnicity nor gender of participants moderated the results of outcome studies of multicultural education.

Moderation by Research Methodology

As noted previously, the 37 outcome studies varied in terms of data source (participant self-report vs. observer/client ratings) and research design. Given the multiple methodological limitations of single-group pre- to post-test designs (Babbie, 1995), it was particularly important to verify if studies using these methods differed from studies using more rigorous experimental and quasi-experimental designs. We therefore regressed these variables onto the effect sizes derived from each study, dummy coding experimental and quasi-experimental studies to contrast with studies employing a single group pre- to post-test design.

The combination of (1) data source and (2) research design accounted for 9.7% of the variance in effect sizes, which was not statistically significant ($Q_3 = 4.0$, $p = .27$). The second model in Table 3 shows the regression coefficients and associated levels of statistical significance for all variables. The results of this regression model indicated that the type of research methodology did not moderate the omnibus effect size reported earlier.

Moderation by Educational Intervention Characteristics

Outcome studies also differed in the type of educational intervention provided. Interventions differed in format, with many being intensive training programs or semester-long university courses and others being workshops of less than two weeks duration. Many were based on extant theory, and some explicitly included skill-building experiential activities. Differences in the types of educational interventions provided could have moderated the magnitude of the observed outcomes. We therefore regressed intervention format (course vs. workshop), theoretical foundation (yes/no), and experiential activities (yes/no) onto the effect sizes derived from each study after centering values on the between-study means.

The three educational intervention variables accounted for 16.7% of the variance in effect sizes, which was statistically significant ($Q_3 = 8.0$, $p = .04$). As can be seen in the third model in Table 3, educational interventions that were explicitly based on extant theory were associated with higher effect sizes than other studies. Examination of the random effects weighted means revealed that interventions explicitly based on extant theory had outcomes nearly twice the magnitude of other interventions ($d = 1.13$ vs. $d = .61$).

Moderation by Type of Measure

Based on our review of the literature, we were interested in ascertaining whether the results obtained across the 37 outcome studies had different results depending upon the construct assessed. For example, multicultural education might have a greater relative impact on measures of multicultural counseling competence than upon measures of racial identity. To evaluate this possibility, we conducted a random effects weighted regression by dummy coding measures of multicultural counseling competence, racial identity attitudes, racial prejudice, and counselor-

client relationship variables in contrast with multidimensional assessments that consisted of more than one of the concepts previously listed.

The resulting regression model explained 14.6% of the variance in effect sizes but was not statistically significant ($Q_4 = 5.1$, $p = .28$). The multicultural education interventions provided were associated with an equivalently positive impact upon measures of multicultural competence, racial prejudice, racial identity, and client-counselor relationships. Outcome measurement did not moderate the omnibus results reported earlier.

Discussion

The results of the two meta-analyses support the assertion that multicultural educational interventions are typically associated with positive outcomes. Nevertheless, the two meta-analyses yielded different results, in part because they asked slightly different questions. Meta-analysis 1 (survey studies) was similar to an employer asking, "What is the difference between an average applicant who has had multicultural education and one who has not?" In Meta-analysis 1, the omnibus effect size extracted from 45 surveys assessing previous participant multicultural education ($d = .49$) corresponds with Cohen's (1988) value for "moderate" effect sizes. This value is nearly identical to average effect sizes obtained when psychotherapy has been compared to placebo treatments ($d = .48$; Lambert & Bergin, 1994), although the magnitude of client symptom reduction in psychotherapy is a more consequential outcome than the magnitude of increased self-reported multicultural competence.

To provide an interpretation of the meaning of the omnibus findings of Meta-analysis 1 using an example from a measure of multicultural counseling competence, an effect size of $d = .49$ would roughly translate[1] into 8 out of 60 questions about competency on the MAKSS

(D'Andrea et al., 1991) being answered 1 point higher on the associated 4-point scale ("very limited," "limited," "good,""very good"). And the real-world value of the distance between "limited" and "good" on the MAKSS scaling would depend on the particular question being asked. Responses to a question like "How would you rate your ability to critique multicultural research?" may be improved through multicultural education, but improved responses to this question may not have as much bearing on clinical performance as responses to a question like "How well would you rate your ability to effectively secure information and resources to better serve culturally different clients?" So in answer to the hypothetical employer's question, an applicant who has completed multicultural education will report moderately higher multicultural competence than an individual who has not, although the employer cannot know what that means in real-world application without seeing the response patterns to a particular outcome measure.

Meta-analysis 2 (outcome studies) answered a different question, similar to an employer asking "How much did the average employee change during the multicultural training we provided?" The omnibus results from the second meta-analysis of 37 outcome studies was $d = .92$, which exceeds Cohen's (1988) guideline of $d = .80$ for "large" effect sizes. By way of comparison, effect sizes found in studies comparing outcomes for clients receiving psychotherapy to individuals receiving no treatment typically average $d = .82$ (Lambert & Bergin, 1994). Another perspective on the magnitude of the results from Meta-analysis 2 is that individuals at the completion of a multicultural education intervention would on average fall at the 83rd percentile of individuals who had undergone general training unrelated to multiculturalism at the same period of time, with 53% of scores from the two groups not overlapping. These differences are substantial. Furthermore, the results were consistently in the positive direction, with only 2 of the 37 outcome studies having effect sizes that were below

Cohen's guideline of $d = .30$ for "small" effect sizes and none having effect sizes in the negative

direction. So in answer to the employer's second hypothetical question, the average participant

completing a particular multicultural education intervention will report large increases in

multicultural competence. Rather than attempting to select applicants based on previous

multicultural education, the employer would be better off to provide multicultural education to

all new hires.

As mentioned, the effect sizes from the 45 survey studies (Meta-analysis 1) were

substantially lower than those from the 37 outcome studies (Meta-analysis 2), but this difference

should be expected. The survey studies evaluated the occurrence of an event in the indeterminate

past, whereas the outcome studies conducted evaluations immediately upon completion of the

intervention. Moreover, survey studies are more susceptible to error than are outcome studies. Of

course, in broader perspective, multiple sources of error are associated with both survey and

outcome research, such that the results of both Meta-analysis 1 and Meta-analysis 2 should be

qualified by several limitations.

Study Limitations and Recommendations for Future Research

Despite the many clear advantages of meta-analyses over traditional narrative literature

reviews (Bushman & Wells, 2001), the results of any meta-analysis depend on the methodology

and evaluations conducted in the individual studies included in the analyses. Limitations of the

studies included in the two meta-analyses reported in this article result in unanswered questions

that will need to be addressed in future research.

In the first meta-analysis, the results are greatly limited by the survey methodology itself.

Survey studies may be influenced by a wide variety of potential confounds (Babbie, 1995).

Typical survey return rates (20-30%) prevent widespread generalization of the results, and

participants who did not return a survey may have differed from those who did in meaningful ways. For example, responders and non-responders may be different in their pre-existing interest/experience in multicultural issues. Similarly, survey participants who indicated that they had not previously completed multicultural education courses may have had a predisposition to avoid multicultural issues, or those who had participated in multicultural education might have had a predisposing interest; thus the omnibus effect size noted could partially reflect participants' pre-existing interest/experience in multiculturalism. Given major methodological limitations such as this one, along with the fact that at least 45 surveys have already been conducted on the topic, the benefit of conducting even one more retrospective survey of multicultutral education seems negligible. Researchers and journal editors are encouraged to direct the field toward more critical questions using more rigorous designs.

The second meta-analysis was also susceptible to several limitations that, although less critical than those of the first meta-analysis, receive more attention here because the results of the second meta-analysis have greater implications for future research and practice. First, 19 of the research studies included in the second meta-analysis employed single-group pre- to post-test assessments, a research design associated with multiple threats to internal validity (Babbie, 1995). Similar to the limitations of survey studies, the limitations associated with single-group designs may have been justified in the past, when researchers were not certain if multicultural education would result in a meaningful positive impact on participants. However, now that the overall positive effect of multicultural education has been established, there is little justification for researchers to conduct any further single-group pre- to post-test design studies.

A second limitation, related to the first, is that only six of the outcome studies involved true experimental designs. Twelve studies used quasi-experimental designs and typically

involved participants from the same graduate program who were taking different academic coursework (i.e., one group taking a multicultural counseling course and another group taking an introductory general counseling course). It is therefore possible that the results obtained in the 12 studies with quasi-experimental designs could be partially attributed to pre-existing differences between cohorts, particularly because none of the studies controlled for participant scores at pre-test. Through the administration of the same measure at pre-test and post-test (a procedure not required in true experimental designs; Babbie, 1995), it is also possible that to some degree the participants were sensitized to the desired outcome. Optimally, future researchers will employ experimental research designs and will use statistical procedures that can minimize threats to the internal validity of the results.

Third, the intervention studies rarely reported disaggregated data. Reporting only aggregate data can obscure within-group differences. For example, early research in psychotherapy outcomes consistently reported decreasing means on measures of pathology until it was discovered that a sizeable percentage of clients experience no change and that a small percentage of clients actually become casualties, deteriorating as a result of the therapy (Lambert & Bergin, 1994). Even though multicultural education interventions were found to have effect sizes of similar magnitude to those of psychotherapy in this meta-analysis, there are reasons to suspect that not all participants increase in their multicultural competence as a result of the interventions they receive (Vontress & Jackson, 2004). Therefore, we recommend that future research use additional data analyses that examine within-group trends. What percentage of individuals receive no benefit from multicultural education interventions? What characteristics are typical of individuals who receive no benefit from multicultural education interventions?

What types of interventions are most effective with individuals who might be at risk for not

benefiting from multicultural education?

Another limitation of the second meta-analysis is that most evaluations were in the form

of self-report measures, with only 10 studies assessing observer or client perceptions of therapist

multicultural competence. Although the intervention studies included in this meta-analysis that

used client or observer ratings of the therapists' multicultural competence yielded effect sizes

similar to those of intervention studies using self-reported measures, the susceptibility of self-

report measures to response bias from social desirability supports the need for differences in

outcome methodology to be investigated in future research. Does multicultural education affect

participants' behaviors in therapy as much as it changes participants' covert attitudes and beliefs

about multicultural issues? Or does multicultural education result in increased sensitivity to

social norms (e.g., heightened awareness of actions that are "politically correct") that is activated

when research participants are under scrutiny in a cross-cultural counseling scenario (i.e.,

expectation bias)?

Fifth, there is a potential dilemma regarding the often generic nature of the educational

interventions (in which information about several social groups—not only racial/ethnic groups—

is presented) and the generic nature of the outcome measures. For example, measures of

multicultural counseling competence typically either collapse questions about different social

groups into one scale or use generic terms such as "ethnic minorities." Thus outcomes are

measured in terms of a conglomerate outgroup. Future research may benefit from greater

specificity in outcome measures (e.g., Dunn, Smith, & Montoya, in press). For example, to what

extent does general multicultural education affect counseling competence with a particular

racial/ethnic group (e.g., Native Americans)? What educational content about a specific group is

necessary to significantly increase counseling competence with that group? To what degree are increases in self-reported multicultural competence a product of increases in personal confidence (e.g., anxiety reduction when the participant knows a little about a formerly unfamiliar group) as opposed to the acquisition of new clinical skills?

Sixth, outcome measures differed in terms of their real-world importance. Data obtained from clients are arguably more useful than data obtained from therapists, and authors of multicultural education literature (e.g., Abreu et al., 2000) have encouraged researchers to evaluate clients' perceptions and outcomes. However, self-report measures remain the most frequently used. Several studies did evaluate client or third-party perceptions (e.g., Christensen, 1984; Constantine, 2001a; Roysircar et al., 2001; Youngs, 1996), and the effect sizes across those studies did not differ from those of studies evaluating therapist self-perceptions. Nevertheless, a conspicuous deficiency in the multicultural education literature is that none of the studies included in this meta-analysis evaluated client retention or clinical outcome data. Does multicultural education translate into tangible benefits (i.e., increased well-being) for mental health consumers, particularly those from historically oppressed backgrounds?

Seventh, the intervention studies were limited in scope to a single academic course or workshop. Although this restriction of scope is to be expected and is advantageous for reasons of internal validity, there may be some advantages to evaluating interventions of a broader scope. The multicultural literature has repeatedly emphasized that multicultural education should become infused across the curriculum of graduate programs (e.g., APA, 2003; Arredondo & Arciniega, 2001; Kiselica et al., 1999; Ponterotto, 1998). However, the studies cited in this meta-analysis only reported the results of delimited interventions, not of an entire program of study (see Ponterotto, Alexander, & Grieger, 1995). Hence, how is the "infusion" of multicultural

issues across the curricula happening across APA-accredited programs? To what extent do doctoral programs provide clinical supervision specific to increasing multicultural competence? How much does multicultural competence increase over the entire period of graduate training, particularly when multicultural issues are integrated across the curriculum?

Eighth, only one study (Neville et al., 1996) evaluated the longitudinal effects of multicultural education. Although that study demonstrated that gains were maintained over one year, additional studies are needed to evaluate the robustness of educational interventions over time. Does multicultural competence decline following several years of clinical practice without continuing education on the topic?

Ninth, the 37 outcome studies that we analyzed in the second meta-analysis may not accurately represent the state of multicultural education across all mental health professions. In particular, we observed that 24 of the 37 (65%) studies were associated with the disciplines of counseling or counseling psychology (i.e., a dissertation conducted in a counseling psychology department or a manuscript published in a counseling or counseling psychology journal). The remaining studies were either published in a journal of general interest (e.g., *Journal of Instructional Psychology*) or were associated with another mental health discipline. Only two studies, both dissertations, were associated with clinical psychology. Clearly additional information about the effectiveness of multicultural education provided in disciplines other than counseling and counseling psychology is needed.

Finally, eight of the intervention studies did not describe the educational intervention provided, and ten provided only cursory information. For purposes of replication, it would be useful if investigators could consistently describe relevant variables such as the background and qualifications of the instructor(s), as well as the educational philosophy, content, processes,

assignments, and objectives. Do instructors and interventions have the characteristics enumerated

by Ponterotto (1998)? Have interventions been developed using the recommendations provided

by Ridley et al. (1994)? Which content areas or experiences had the greatest positive impact on

participant multicultural competence? Questions such as these can form the basis of future

research on multicultural education, with the goal of substantively increasing the effectiveness of

the educational interventions for all participants.

Implications for Multicultural Educational Interventions

An important finding of this meta-analysis is that multicultural educational interventions

that were designed explicitly based on extant theory and research were nearly twice as effective

($d = 1.13$) as those that were not ($d = .61$). This finding supports previous assertions that

multicultural education may be less effective when it is not based on research-based principles of

multicultural competence (Carter, 2001, 2003). It is our opinion that when instructors of

multicultural education courses work to develop a theory-based curriculum, they may benefit

from previously published guidelines, such as those postulated by Charles Ridley and colleagues

(1994, 1997). The fact that only 5 of the 37 intervention studies included in our second meta-

analysis cited Ridley et al.'s work might suggest the need for more professionals to utilize this

and other types of theory-based multicultural education and training resources.

Instructors also may benefit from designing educational interventions that promote

fundamental multicultural counseling skills already identified in the literature (e.g., Arredondo et

al., 1996). Competency based objectives, instructional strategies, and assessments would likely

increase the effectiveness of multicultural education initiatives. "Maybe in the future more

programs will hold students to a competence standard in classes that are designed to teach them

about racial-cultural issues, especially since the cultural competence standards have been in existence for more than 20 years" (Carter, 2003, p. 30).

Conclusions

The two meta-analyses reported in this manuscript demonstrated an overall positive effect of multicultural education. Although the impact of multicultural education was negligible in a few research reports, none of the 82 studies reviewed here found an overall negative effect. Because these conclusions are based on aggregate data, future research should investigate to what degree and under what circumstances individual participants do not benefit from multicultural education. Future research should also assess outcomes, particularly clinical outcomes, that have better potential to indicate specific improvements in the interventions provided. Instructors of multicultural education courses are strongly encouraged to base those courses on extant theory and research and to evaluate students based on standards of competency.

In summarizing the results and implications of this meta-analysis, we call attention to a larger issue that has influenced the development of multicultural education initiatives in psychology. As indicated early in this paper, multicultural education in psychology has proliferated largely as a result of graduate programs' compliance to accreditation standards. Support from professional organizations such as APA and CACREP has been crucial to enhancing the abilities of mental health professionals to effectively serve an increasingly diverse society. Therefore, an important implication of these meta-analyses is for professional organizations to continue their support for multicultural education. Because institutional initiatives in support of multicultural competence appear to set the parameters for multicultural education generally, multicultural education initiatives and the construct of multicultural

competence must undergo ongoing and rigorous scrutiny if they are to continue receiving

widespread support from mental health professions.

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Author Note

Footnote

[1]This example was generated by multiplying the standard deviation of scores on the

MAKSS (using the value of 15.6 as reported by Constantine, 2001c) and multiplying that value

by the average effect size (15.6 x .49 = 7.64, rounded up to 8) to obtain the difference in the

number of items endorsed on the MAKSS.

Table 1

*Characteristics of Multicultural Education Survey Studies (Meta-Analysis 1) and Outcome
Studies (Meta-Analysis 2)*

Characteristic	Meta-Analysis 1 %	Meta-Analysis 2 %
Women Participants[a]	72	74
Participants' Race/Ethnicity[b]		
African American	7	10
Asian American	3	4
Caucasian/White	81	78
Latino/Hispanic	4	2
Native American	1	1
Other	4	5
Participants' Education Status[c]		
Professional	42	24
Student	58	76
Outcome Measure Content[d]		
Multicultural Counseling Competence	60	57
Racial/Ethnic Identity	7	5
Racial Prejudice	8	12
Client-Counselor Relationship	18	11
Multi-dimensional (more than one of the above)	7	16

Table 1 (continued)

[a]Participants' gender was reported in all 45 survey studies (Meta-analysis 1) and in 30 of 37 outcome studies (Meta-analysis 2), with values averaged across studies reporting data.

[b]Participants' race/ethnicity was reported in 43 of 45 survey studies (Meta-analysis 1) and in 36 of 37 outcome studies (Meta-analysis 2), with values averaged across studies reporting data.

[c]Participants' education status was reported in 43 of 45 survey studies (Meta-analysis 1) and in 35 of 37 outcome studies (Meta-analysis 2), with values averaged across studies reporting data.

[d]Data are based on all 45 survey studies (Meta-analysis 1) and all 37 outcome studies (Meta-analysis 2), with each study representing a single category of measurement.

Table 2

Random Effects Regression Weights for Participant Characteristics and Measurement Type on

Effect Sizes from Retrospective Surveys (Meta-Analysis 1)

Variable	B	SE	*p*	β
Model 1: Participant Sociodemographic Characteristics[a]				
Constant	.484	.121	<.001	
Race/Ethnicity (% People of Color)	.006	.003	.06	.25
Gender (% Women)	.002	.040	.53	.08
Model 2: Type of Dependent Measure [b]				
Constant	.492	.040	<.001	
Multicultural Competence	.252	.148	.09	.43
Racial Identity	.141	.199	.48	.13
Racial Prejudice	.338	.197	.09	.31
Client-Counselor Relationship	.200	.164	.22	.27

[a]Participants' gender and race/ethnicity were entered into the model as if they were independent

predictors. However, attributes of gender and race/ethnicity characterize all participants, so

these are not mutually exclusive variables (i.e., some women are people of color and vice versa).

[b]Type of measurement was dummy coded in contrast with studies using multidimensional

assessment of more that one of four specific types of measurement (see also Table 1).

Table 3

Random Effects Regression Weights for Study Characteristics Associated with Effect Sizes from

Educational Outcome Studies (Meta-Analysis 2)

Variable	B	SE	p	β
Model 1: Participant Sociodemographic Characteristics[a]				
Constant	.896	.106	<.001	
Race/Ethnicity (% People of Color)	.005	.006	.37	.14
Gender (% Women)	.016	.009	.09	.27
Model 2: Research Methodology Characteristics				
Constant	.931	.100	<.001	
Data Source (Self vs. Third-Party)	.220	.273	.42	.14
Research Design				
Experimental	.014	.314	.96	.01
Quasi-experimental	-.421	.225	.06	-.31
Model 3: Educational Intervention Characteristics				
Constant	.938	.093	<.001	
Based on Theoretical Model	.514	.193	.008	.40
Format (course vs. workshop)	.136	.204	.50	.10
Experiential Content	.187	.283	.51	.15

Table 3 (continued)

Variable	B	SE	p	β
Model 4: Type of Dependent Measure[b]				
Constant	.930	.109	<.001	
Multicultural Competence	.590	.310	.06	.46
Racial Identity	.090	.545	.87	.03
Racial Prejudice	.139	.437	.46	.07
Client-Counselor Relationship	.255	.416	.54	.13

[a]Participants' gender and race/ethnicity were entered into the model as if they were independent predictors. However, attributes of gender and race/ethnicity characterize all participants, so these predictors are not mutually exclusive (i.e., some women are people of color and vice versa).

[b]Type of measurement was dummy coded in contrast with studies using multidimensional assessment of more that one of four specific types of measurement (see also Table 1).